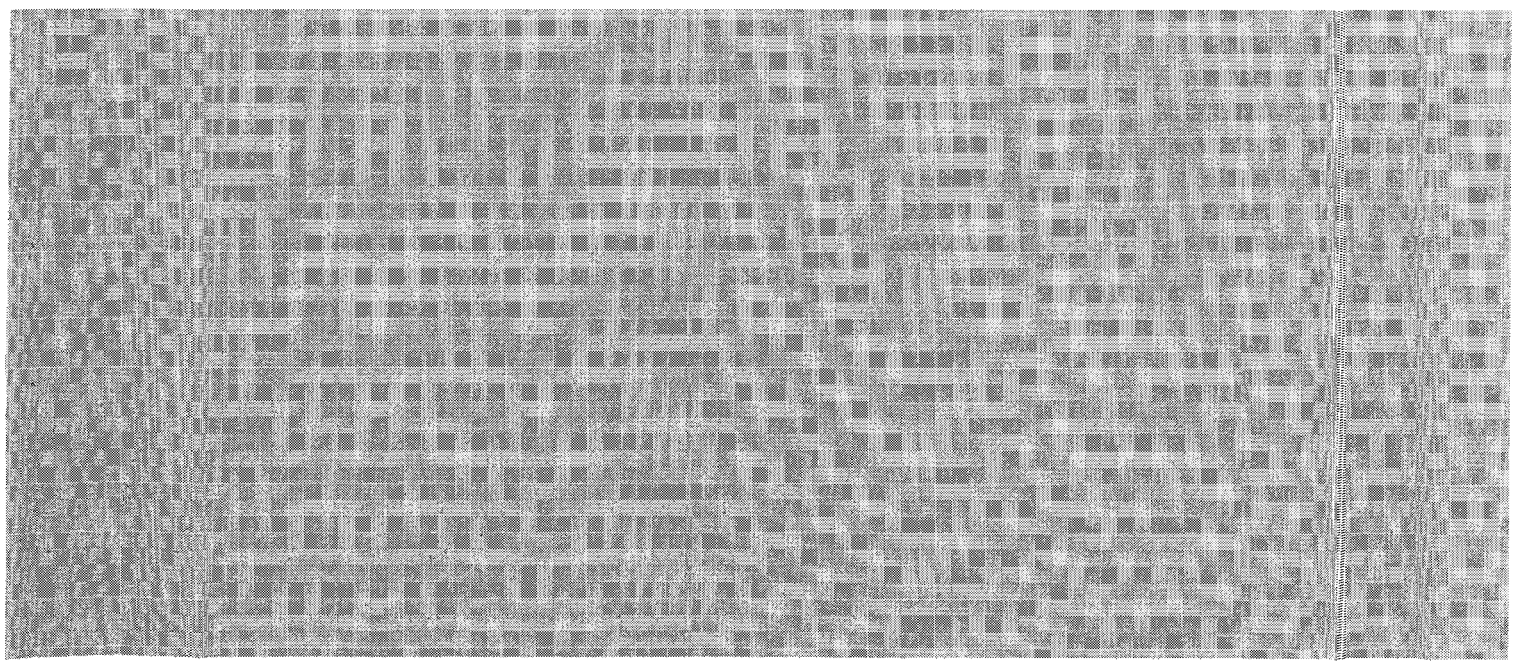
GoldStar

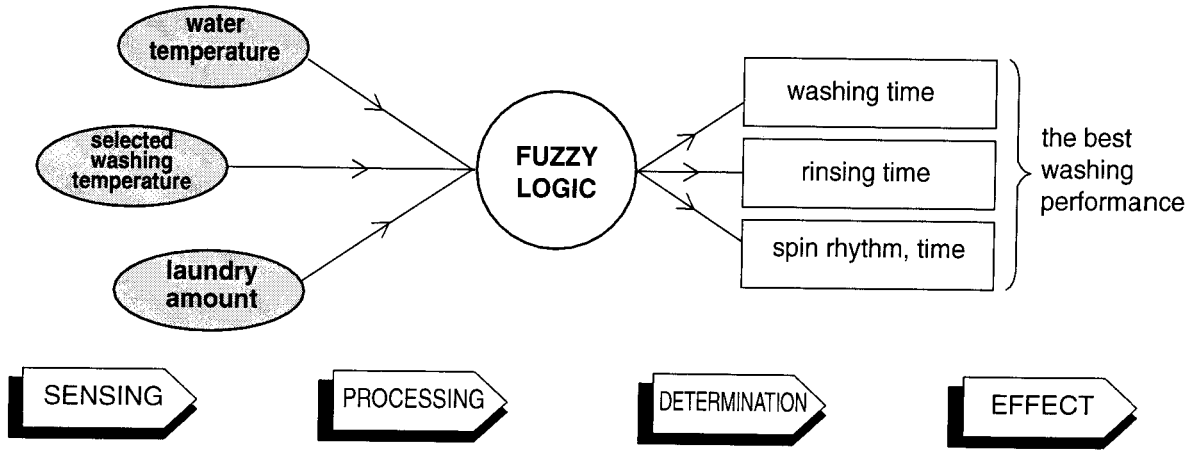
SERVICE MANUAL

MODEL : **WD14115FD**



2-2.DETERMINE WASHING TIME BY FUZZY LOGIC

To get the best washing performance optimal time is determined by sensing of water temperature, selected washing temperature and laundry amount.



2-3.WATER LEVEL CONTROL

- This model adopts a pressure sensor which can sense the water level in the tub.
- Water supply is stopped when the water level to the preset level, then the washing program proceeds.
- Spinning does not proceed until the water in the tub reduces a certain level.

2-4.THE DOOR CAN NOT BE OPENED

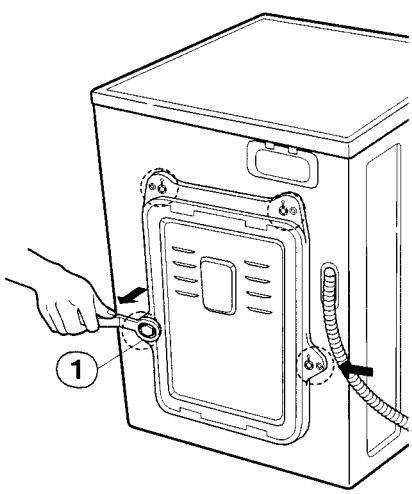
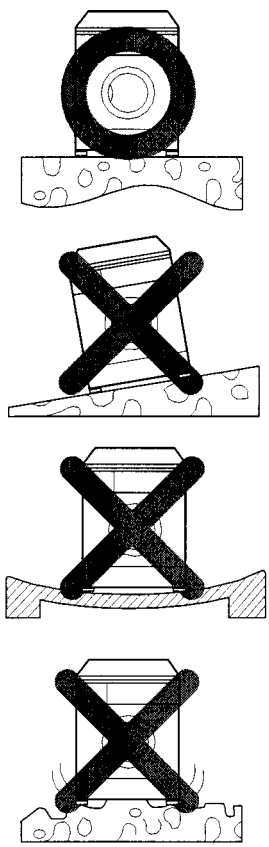
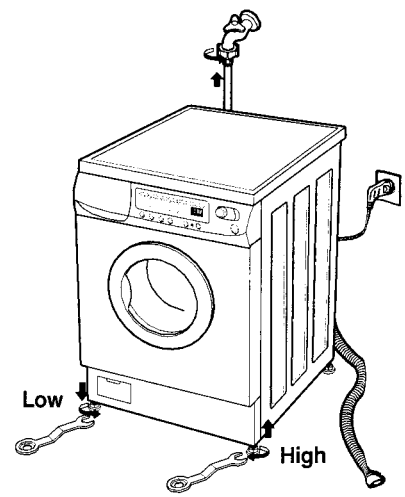
- While program is operating.

4. INSTALLATION

[1] Before servicing ask the customer what the trouble is.
[2] Check the adjustment (power supply is 220-240V~, remove the transit bolts....)
[3] Check the troubles referring to the troubleshooting.
[4] Decide service steps referring to disassembly instructions.
[5] Then, service and repair.
[6] After servicing, operate the appliance to see whether it works O·K or NOT.

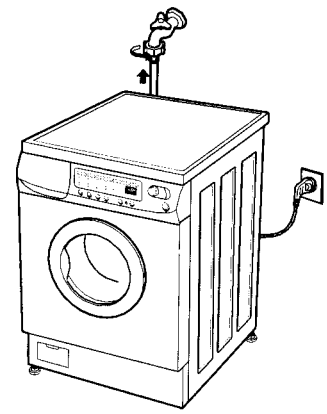
■ STANDARD INSTALLATION

The appliance should be installed as follows.

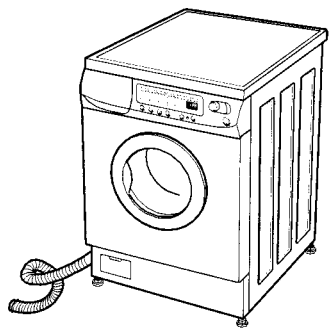
REMOVE THE TRANSIT BOLTS	INSTALL THE APPLIANCE ON FLAT AND FIRM SURFACE	ADJUST THE HORIZONTAL
• Remove the transit bolts (4EA: ①) with supplied spanner. • Keep the transit bolts and spanner for future use. • Insert the provided 4 caps into the hole 		• Turn the leveling feet to set the appliance horizontally.  • The appliance goes up by rotating the feet clockwise. • The appliance comes down by rotating the feet counter-clockwise.

■ HOW TO CONNECT INLET HOSE

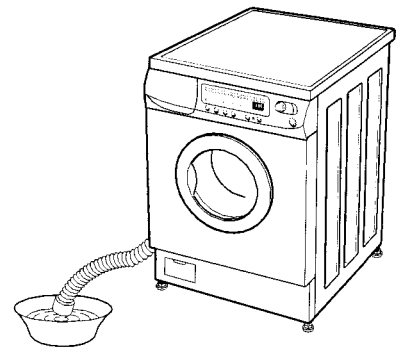
- Check that the rubber washer is inside of the valve connector.
- Connect the inlet hose firmly to prevent leak.



■ CONNECT DRAIN HOSE



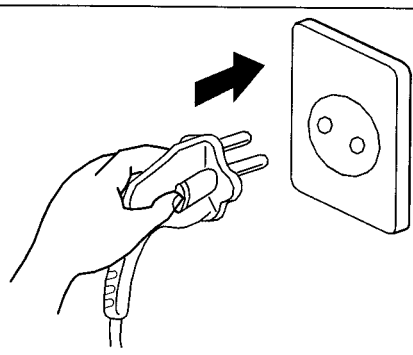
· Make sure that the hose is not twisted.



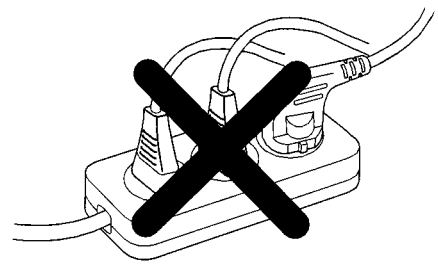
· Avoid submerging the end of the hose.

※ The drain hose should be placed under 100cm from the floor.

■ CONNECT POWER PLUG



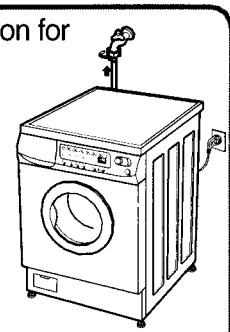
· Connect the power plug to the wall outlet.



· Avoid connecting several electric devices,
It may be the cause of a fire.

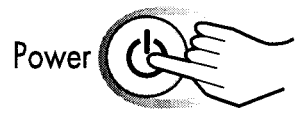
7 TEST OPERATION

1 Preparation for washing.

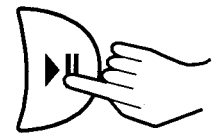


- Connect the power plug to the outlet.
- Connect the inlet hose.

2 Press the power button.

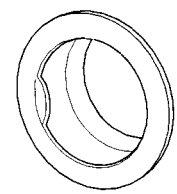


3 Press the Start/Pause button.



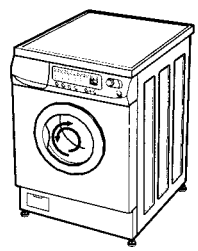
- In case of coloureds program.

4 Check the water supply.



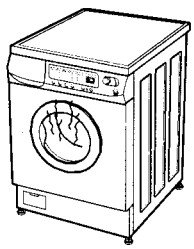
· Check if water is supplied through the detergent dispenser.

5 Check automatic reverse turn.



· Check if the drum rotates clockwise and counterclockwise.

6 Check the water heating.

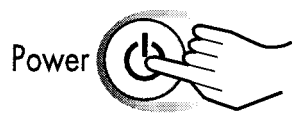


· Press the **Temp.** button and the present temperature will be displayed.

7 Check drain and spin

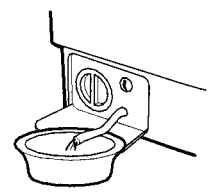
· Turn off **Wash** and **Rinse** after pressing the **Start/Pause** button and start the machine again.
· Check drain and spin.

8 Power off and open the door



· Power off and then power on.
· Check if the door can be opened after 3 minutes.

9 Water removal



· If SVC is needed during check, remove the remaining water by pulling out the hose cap.

6. WIRING DIAGRAM / PROGRAM CHART

[WD(M)-14110(5)FD(F/N) / 16110(5)FD(F/N)]

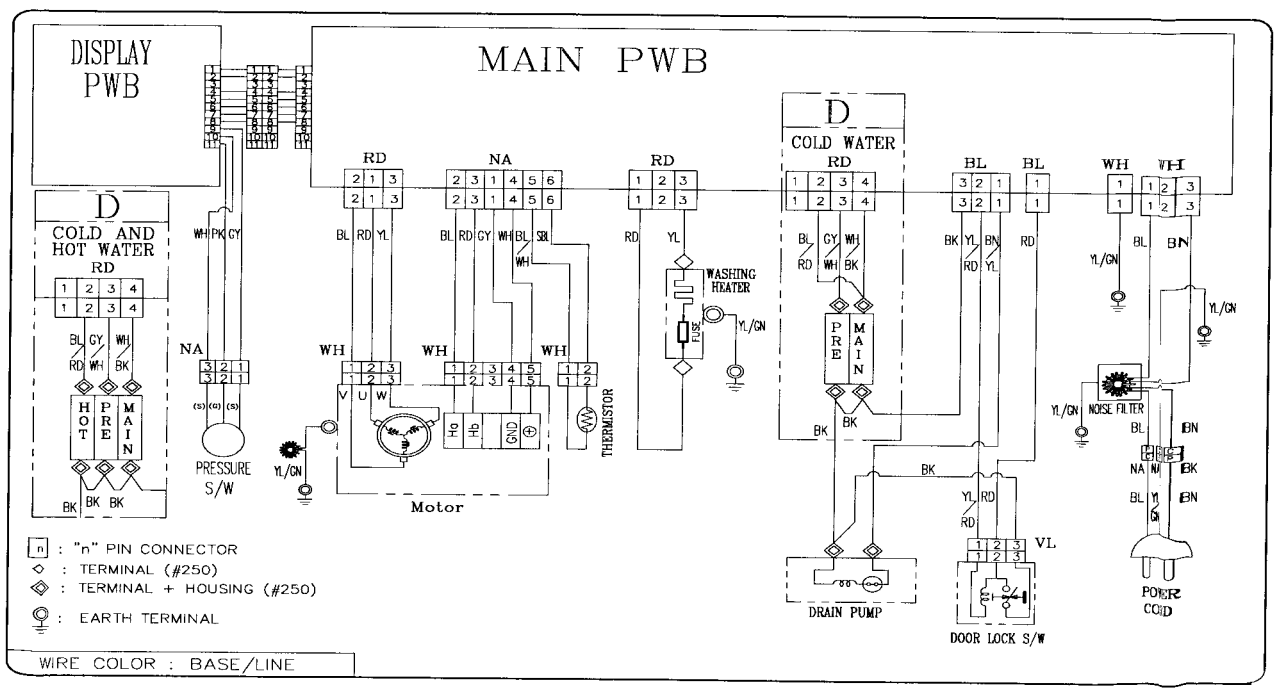
PROGRAM CHART

* Water Supply : W·S * Intermittent Spin : I·S * Disentangle : D·T

COURSE / CYCLE STEP	Washing: Pre W·S	Pre Washing	Pre Drain	Pre I·S	Main W·S	Main Washing: Heating	Main Washing	Main Staycooling W·S	Main Staycooling Rinsing	Main Staycooling Drain	Rinse 1 Drain	1 I·S	1 W·S	1 Rinsing	2 Drain	2 I·S	2 W·S	2 Rinsing	3 Drain	3 I·S	3 W·S	3 Rinsing	Extra (Hold) 4 Drain	4 I·S	4 W·S	4 Rinsing	Spin Drain	Spin	Spin D·T	END	AUTOOFF	Normal Working Time (Hour:Minute)
STEP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	20	20	
Time (SEC)	120	MIN	60	300	120		MIN	120	60	60	60	300	120	360	60	300	120	360	60	300	120	360	60	300	120	360	60	120 ~ 540	120	20	20	
Whites	8						1 40	3 TIMES																								About 2:45
Coloreds	8						23 56																									About 2:02
Synthetic	8						23 1																									About 1:33
Wool							17																									About 1:02
HandWash	8						18 1																									About 56
Delicate							20 1																									About 1:04
Quick30							10																									About 30
Washing	8						23 56																									About 1:10
Rinsing																																About 39
Rinsing Hold																																About 39
Spin																																About 15
Washing + Rinsing	8						23 56																									About 1:48
Washing +Spin	8						23 56																									About 1:17
Rinsing + Spin																																About 53

* ■■■■ Basic Cycle
* ▒▒▒▒ Optional Cycle
* Pre-Setting Time : Water Supply - 120 sec.
Drain - 60 sec.
* ~ Time for varies as the temperature or the amount of laundry

* For Wool or Synthetic course only 650 rpm is operated
* Shower Rinsing : Rinsing time is 20 sec
* Basic time is minute in washing chart
* The actual program time can be varied with the load amount, water temperature or ambient temperature



7. TROUBLESHOOTING

7-1.BEFORE PERFORMING SERVICE

■ Be careful of electric shock or disconnecting the parts while troubleshooting.

■ Voltage of each terminal in 220-240V~ and DC while applying an electric current.

7-2.QC TEST MODE.

① Pressing **Rinse**, and **Spin** button simultaneously.

② Power supply on with pressing upper two button.Then buzzer sound twice.

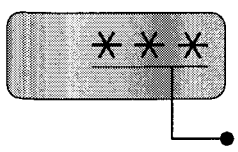
③ Press the Start/Pause button as follows.

[Press the Start/Pause button more 4 times until stop spinning]

Pressing number of [Start/Pause] button	Checking Point	Display Status
None	All lamps turn on	18:88
1 time	Clockwise spin (right)	Drum rpm (About 40~50)
2 times	Low speed Spin	Drum rpm (About 53~65)
3 times	High speed Spin	Drum rpm (About 140~160)
4 times	Inlet valve for prewash operation	Water level frequency (25~65)
5 times	Inlet valve for mainwash operation	Water level frequency (25~65)
	Hot inlet valve in case of hot water fill	
6 times	Inlet valve for mainwash operation	Water level frequency (25~65)
7 times	Counterclockwise spin (left)	Drum rpm (About 40~50)
8 times	Heater is in operation for 3 sec.	Water temperature
9 times	Draining pump operation	Water level frequency
10 times	Auto off operation	

7-3.HOW TO KNOW THE WATER LEVEL FREQUENCY

* Press the **Rinse** and **Spin** button simultaneously.



The digits means water level frequency (10^{-1} kHz)

ex) 241 : Water level frequency = 241 × 10^{-1} kHz

=24.1 kHz

7-4.ERROR DISPLAY.

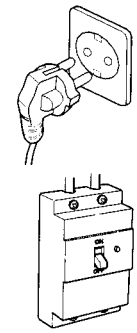
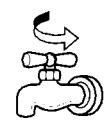
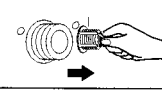
- If you press the Start/Pause button when an error in displayed, any error except PE will disappear and the machine will change into pause status.
- In case of PE , tE , dE , if the error is not resolved within 20 sec. In the case of other errors, if the error is not resolved within 4 min., power will be turned off automatically and the error only will be blinked. But in the case of FE , power will not be turned off.

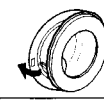
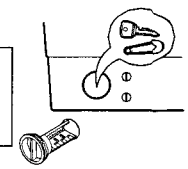
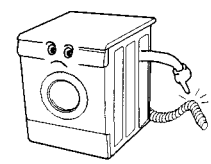
	ERROR	SYMPTOM	CAUSE
1	WATER INLET ERROR		o Water has not reached to the pre-set level within 8 min. since inlet valve operated, or water has not reached to the normal level within 25 min.
2	IMBALANCE ERROR		o Load is too small. o The appliance is tilted. o Laundry is gathered to one side. o Non-distributable things are put into the drum.
3	DRAIN ERROR		o Water has not drained enough within 10 min.
4	OVERFLOW ERROR		o Water is automatically being pumped out because too much water is in the tub.
5	SENSOR PRESSURE S/W ERROR		o The sensor pressure switch is out of order.
6	DOOR OPEN ERROR		o The Start/Pause button is pressed with the door open. o The door switch is out of order.
7	HEATING ERROR		o The THERMISTOR is out of order.

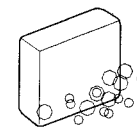
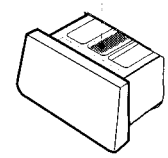
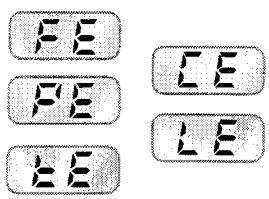
	ERROR	SYMPTOM	CAUSE
8	CURRENT ERROR		• MAIN PWB ASSEMBLY is out of order ☞ Replace the MAIN PWB ASSEMBLY • Winding in the STATOR ASSEMBLY is short-circuited. ☞ Replace the STATOR ASSEMBLY
9	LOCK ERROR		• The connector (3-pin, male, white) in the LEAD WIRE ASSEMBLY is not connected to the connector (3-pin, female, white) of STATOR ASSEMBLY. ☞ Reconnect or repair the connector • The electric contact between the connectors [3-pin, male, white in the LEAD WIRE ASSEMBLY and 4-pin, female, natural in the MAIN PWB ASSEMBLY is bad or unstable. ☞ Reconnect or repair the contact in the connector • The LEAD WIRE ASSEMBLY between the STATOR ASSEMBLY and MAIN PWB ASSEMBLY is cut (open circuited). ☞ Repair the damaged (open-circuited) the LEAD WIRE ASSEMBLY • The hall sensor is out of order/defective. ☞ Replace the STATOR ASSEMBLY

8. ERROR DIAGNOSIS AND CHECK LIST

8-1.DIAGNOSIS AND ANSWER FOR ABNORMAL OPERATION

SYMPTOM	GUIDE FOR SERVICE CALL
NO POWER	Is the power plug connected firmly to 220-240V~ outlet? YES Power failure? or Breaker opened? Is the outlet controlled by a switch NO Visit to check 
WATER INLET TROUBLE 	Is displayed? YES Is the tap opened? YES Is the tap frozen? NO Is the water supply shut-off? NO Is filter in the inlet valve clogged with foreign material? YES Clean the filter of inlet valve NO Visit to check  

SYMPTOM	GUIDE FOR SERVICE CALL
◦ DOOR OPEN ERROR 	Did you press the **Start/Pause** button when the door is open? **YES** → Close the door  **NO** Visit to check **Check if the door switch is O.K**
◦ DRAIN TROUBLE 	Is displayed? **YES** Is the debris filter clogged with foreign material such as pins, coins, etc? **YES** → Clean up the filter.  **NO** Is the drain hose frozen with water, kinked, or crushed?  **NO** Visit to check

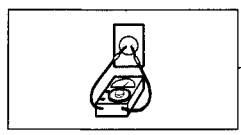
SYMPTOM	GUIDE FOR SERVICE CALL
◦ Suds overflow from the appliance. (In this condition, wash and spin do not operate normally)	Is low-sudsing detergent for the drum washing machine used? YES Is the proper amount of detergent used as recommended? YES Recommend to reduce the amount of detergent. * This appliance has the automatic suds sensing function which operates under much suds condition for good rinse and preventing overflow. * When much suds are sensed, the suds removing function such as drain, water input, and pause will operate without rotating the drum.  LOW-SUDSING DETERGENT
◦ No effect of softener	Is softener put in the correct compartment of the drawer? YES Is the drawer closed during wash? YES Is the softener cap clogged? YES Explain how to use softener **Clean the compartment for softener** Compartment for softener 
	Visit to check

8-2.FAULT DIAGNOSIS AND TROUBLESHOOTING

CAUTION

1. Be careful of electric shock or disconnecting the parts while troubleshooting.
2. First of all, check the connection of each part terminal with wiring diagram.
3. If you replace the MAIN PWB ASSEMBLY, put in the connectors correctly.

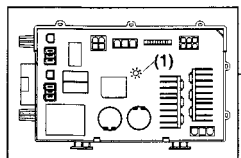
NO POWER



When measuring the voltage of the outlet, is the voltage AC 220-240V?

NO → Check the fuse?

YES ↓

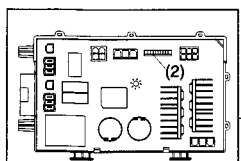


MAIN PWB ASSEMBLY

Is the led (1) on?

NO → Replace MAIN PWB ASSEMBLY

YES ↓

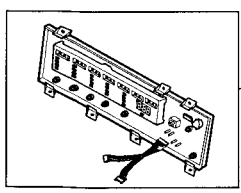


MAIN PWB ASSEMBLY

Is connector (2) disconnected or disassembled?

YES → Reconnect the PWB ASSEMBLY

NO ↓



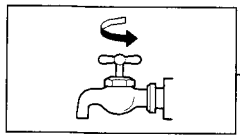
Is wire of the PWB ASSEMBLY disconnected?

YES → Reconnect the PWB ASSEMBLY

NO ↓

Replace PWB ASSEMBLY

NO WATER SUPPLY

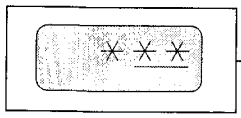


Is water supply shut-off?

NO

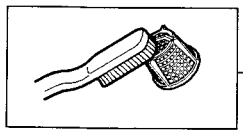
Is the tap opened? — NO → Open the tap.

YES



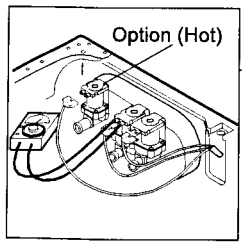
When you press both Rinse button and Spin button simultaneously, is the water level frequency below 240? — YES → Check the AIR CHAMBER and the tube clogged with impurity.

NO



Is the inlet valve filter clogged with impurity? — YES → Clean the filter.

NO

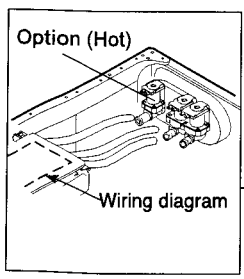


Is resistance between each terminal of INLET VALVE ASSEMBLY is 2~8 k Ω? — NO → Replace the INLET VALVE ASSEMBLY.

YES

Check the voltage of the inlet valve connector 220 - 240V~.
(Refer to 7-2 QC TEST MODE) — NO → Replace the MAIN PWB ASSEMBLY

DETERGENT DOES NOT FLOW IN

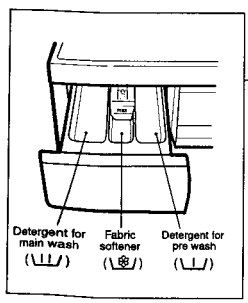


Is water supplied? — NO → Refer to 「NO WATER SUPPLY」

YES

Are replaceptacles correctly connected to the terminals of the INLET VALVE ASSEMBLY? — NO → Check the wiring on the dispenser.

YES



Is detergent put in the correct compartment of the drawer? — NO → Put the detergent in the correct position

PRE+MAIN ● ●

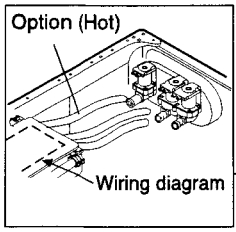
MAIN WASH ●

● : Detergent

YES

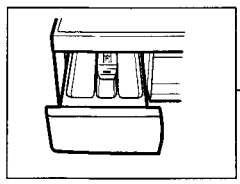
Is the detergent caked or hardened? — YES → Clean the drawer.

SOFTENER DOES NOT FLOW IN

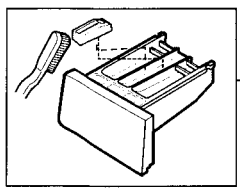


Is water supplied?
NO → Refer to 「NO WATER SUPPLY」
YES ↓

Are receptacles correctly connected to the terminals of the INLET VALVE ASSEMBLY?
NO → Check the wiring on the dispenser.
YES ↓

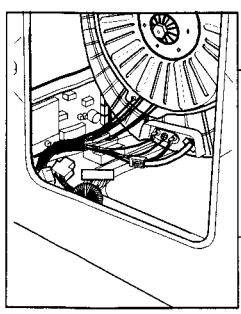


Is softener put in the correct compartment of the drawer?
NO → Put it in the correct compartment.
YES ↓



Is the softener cap clogged?
YES → Clean the cap and drawer.

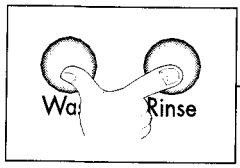
ABNORMAL SOUND



Is the motor bolt loosened?
YES → Fix the bolt tightly.
NO ↓

Is there friction noise from the motor?
YES → Replace the STATOR ASSEMBLY or ROTOR ASSEMBLY.

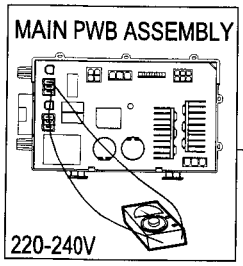
HEATING WITHOUT WATER



When pressing Wash and Rinse at the same time after draining, is the water level frequency 252 or more? When pressing Rinse, Spin buttons at the same time while wash, is the water level frequency between 230 - 243 ?

NO → Replace the S.PRESSURE SWITCH ASSEMBLY

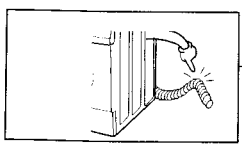
YES



Checking voltage between two pins as press the POWER button is the voltage 220 - 240V~?

YES → Replace the MAIN PWB ASSEMBLY

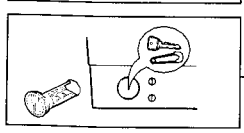
DRAIN MALFUNCTIONING



Is the drain hose twisted or frozen?

YES → Repair the DRAIN HOSE ASSEMBLY.

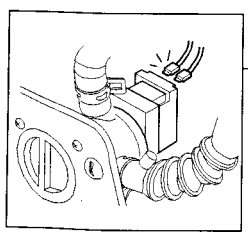
NO



Is the impeller of the drain pump clogged?

YES → Remove foreign material.

NO



Is the connector disconnected, disassembled?

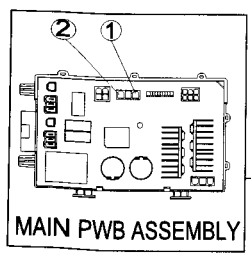
YES → Reconnect or repair the connector

NO

Is the coil of the drain pump cut-off? (resistance of coil is 90~200 Ω)

YES → Repair the DRAIN PUMP ASSEMBLY.

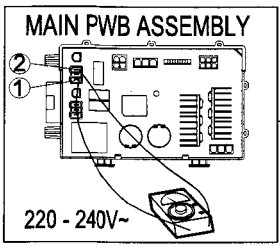
NO



When checking voltage between connectors (①, ②) on spinning, is the voltage 220 - 240V~ as the figure?

NO → Repair the MAIN PWB ASSEMBLY.

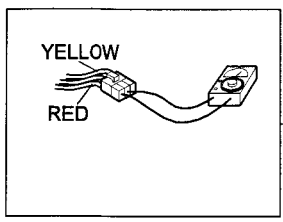
WASH HEATER TROUBLE



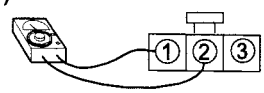
When checking the voltage between connectors (①, ②) during whites washing, Is the voltage 220 - 240V ~?

NO → Replace the MAIN PWB ASSEMBLY

YES ↓

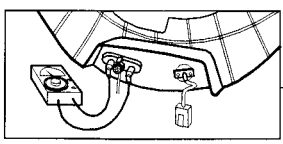


After power off,is the resistance of wire (RED-YELLOW) connectors between 10Ω~30Ω?



YES → Normal

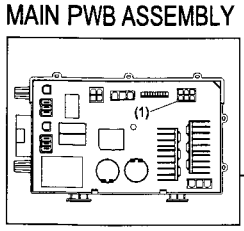
NO ↓



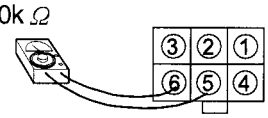
After power off and the heater terminal is disconnected, is the resistance 10~30Ω?

NO → Replace the HEATER ASSEMBLY

HEATING CONTINUOUSLY ABOVE THE SETTING WATER TEMPERATURE

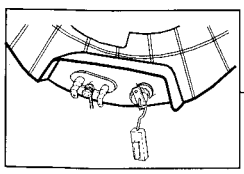


When disconnect the connector (1) on the, MAIN PWB ASSEMBLY, is the resistance of the natural connectors [⑤(Blue/White), ⑥(Sky blue)] between 2.5kΩ to 180kΩ (105℃~0℃)?



NO → Replace the THERMISTOR (6322FR2046C)

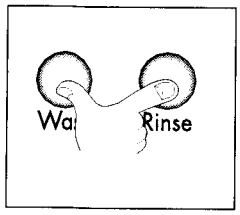
YES ↓



When checking THERMISTOR on the tub is the THERMISTOR loosened above 2mm from the rubber?

YES → Push the THERMISTOR tightly to the rubber.

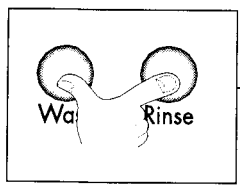
SPIN TROUBLE



Check on the spinning, is the frequency of the water level 248 or more. The frequency can be checked by pressing the Wash and Rinse buttons at the same time on the program.

NO → Check the S.PRESSURE SWITCH ASSEMBLY or HOSE (Pressure). If the problem is on the S.PRESSURE SWITCH ASSEMBLY or the HOSE, replace the S.PRESSURE SWITCH ASSEMBLY or the HOSE.

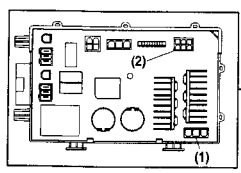
YES



When pressing Rinse, Spin and POWER buttons at the same time after power off, press the Start/Pause button 2 times, is the drum spinning at low speed?

YES → Normal

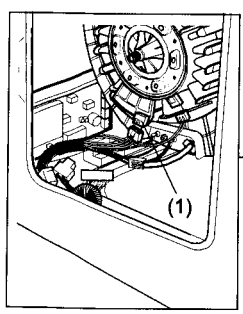
NO



Is it disconnected, or disassembled?
[Red:3pin (1), NA:6pin (2)]

YES → Correct the connector.

NO



Check the motor connector, Is the resistance of the terminal same as the figure?

MOTOR TERMINAL (1)

①	②	③

Resistance of terminal:

①~② / ②~③ / ③~① : About 5Ω~10Ω

NO → Replace the STATOR ASSEMBLY (4417FA1994E)

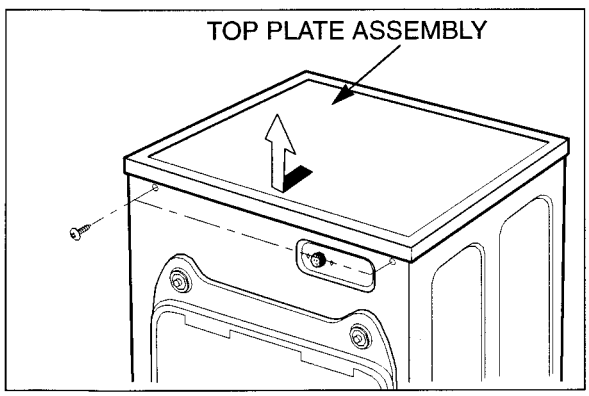
YES

Replace the MAIN PWB ASSEMBLY

9. DISASSEMBLY INSTRUCTIONS

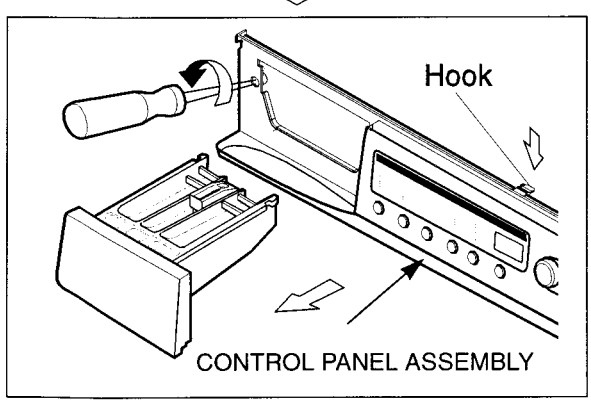
* Be sure to unplug the machine out of the outlet before disassembling and repairing the parts.

CONTROL PANEL ASSEMBLY



① Unscrew 2 screws on the back of the top plate.

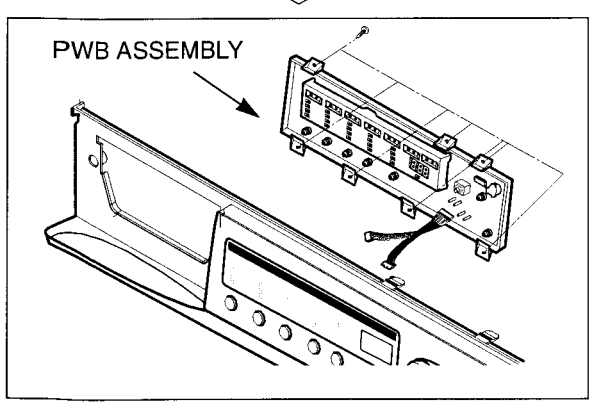
② Pull the top plate backward and upward as shown.



① Disconnect the ASSEMBLY connector.

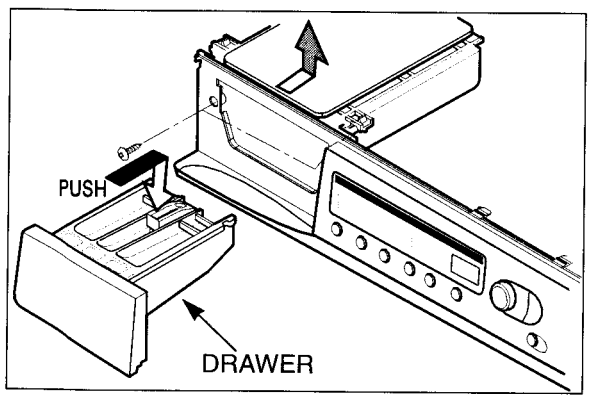
② Pull out the drawer and unscrew 2 screws.

③ Push 2 upper hooks down and pull the control panel.

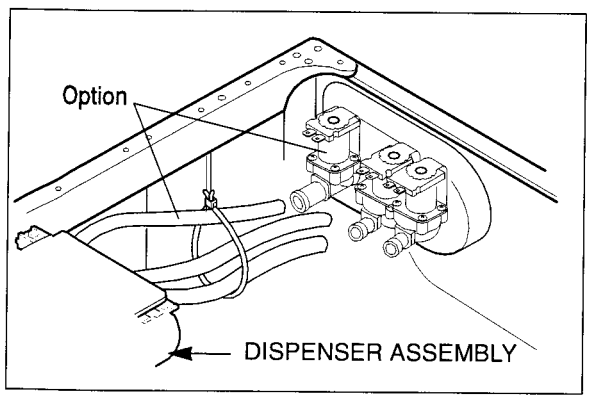


① Disconnect the PWB ASSEMBLY from the contrd panel by unscrewing 7 screws.

DISPENSER ASSEMBLY

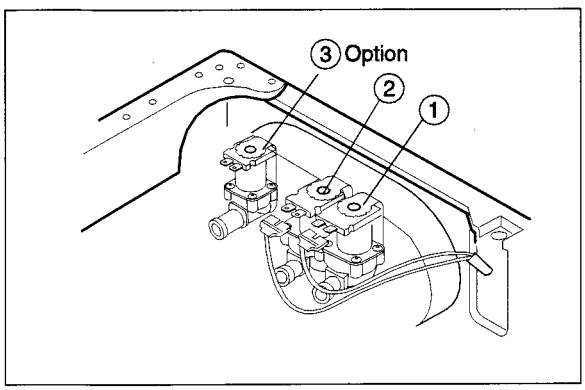


① Disassemble the TOP PLATE ASSEMBLY.
② Pull out the drawer slightly upward.
③ Unscrew 2 screws.



① Disassemble hose clamps and hoses.
② Disassemble the ventilation bellows and the water inlet bellows from the tub.

INLET VALVE ASSEMBLY



① Disconnect the wiring connector.
② Unscrew 2 screws from the back.

* When reconnecting the connector

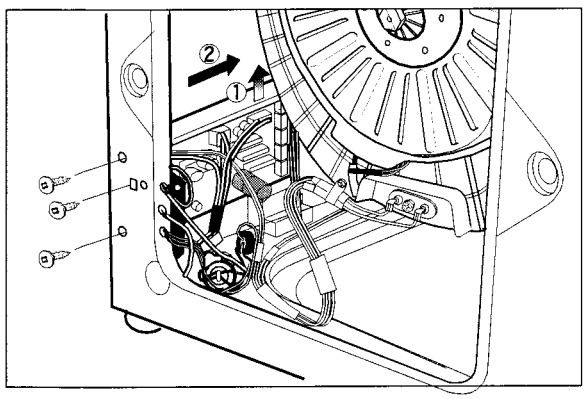
* Cold only model

VALVE#1 (MAIN)	Whited/Black-Black
VALVE#2 (PRE)	Gray/ White - Black

* Cold and Hot model

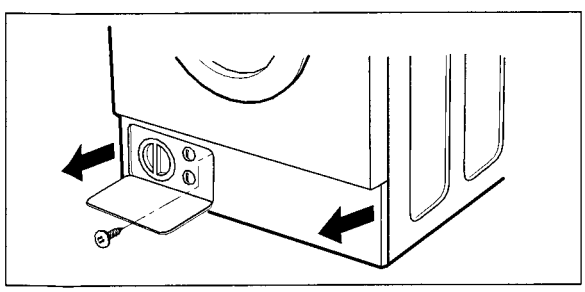
VALVE #1 (MAIN)	Whited/Black-Black
VALVE #2 (PRE)	Gray/ White - Black
VALVE #3 (HOT)	Blue/Red - Black

MAIN PWB ASSEMBLY



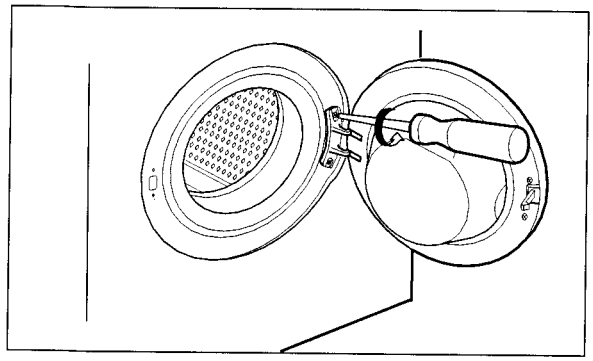
① Remove the back cover.
② Unscrew 3 screws.
③ Disassemble the FILTER ASSEMBLY.
④ Pull the MAIN PWB ASSEMBLY as shown.

LOWER COVER



① Open the lower cover CAP by using coin and pull out the lower cover in the arrow direction after a screw is unscrewed.

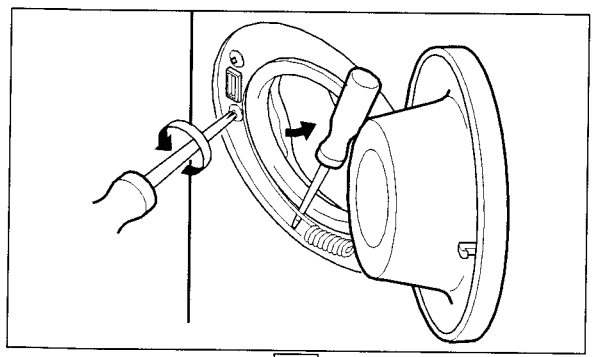
DOOR ASSEMBLY



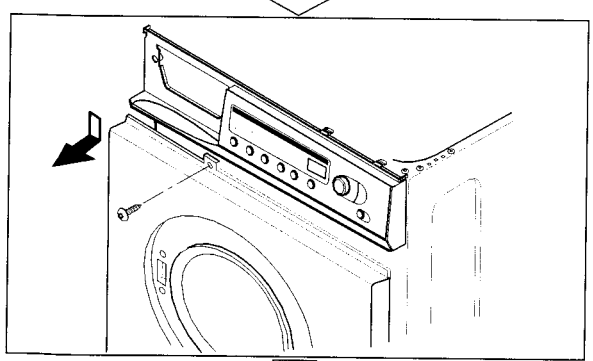
① Open the door completely.
② Remove the two screws from the hinge.

※ When removing the DOOR ASSEMBLY, it is necessary to hold the BRACKET that is inner of the CABINET COVER.

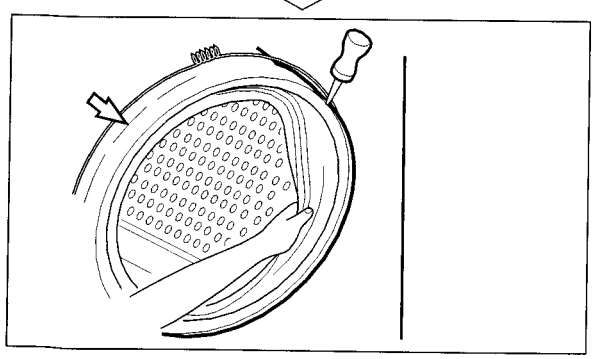
GASKET



① Take apart the CLAMP ASSEMBLY (cabinet).
② Unscrew 2 screws from the CABINET COVER.
③ Open the lower cover cap and unscrew 1 screw inside
④ Take apart the LOWER COVER.

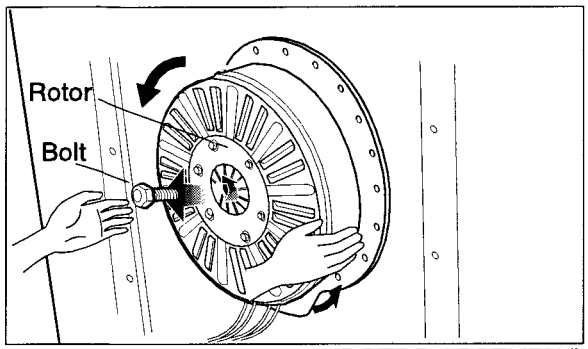


① Disassemble the CONTROL PANEL ASSEMBLY. (Refer to page 25)
② Unscrew all the screws on the upper and lower sides of the CABINET COVER.



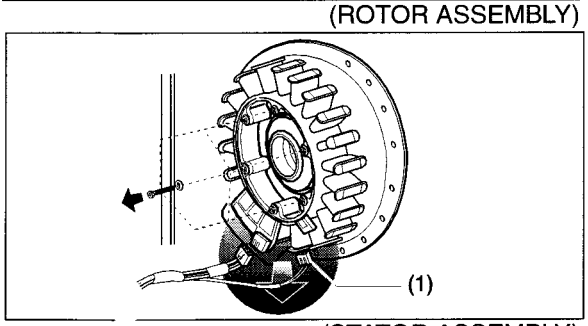
① Take apart the tub CLAMP ASSEMBLY
② Make sure that the drain hole of the GASKET is put beneath when reassembling the GASKET.
※Refer to the arrow mark on the TUB COVER.

ROTOR ASSEMBLY, STATOR ASSEMBLY, FRICTION DAMPER ASSEMBLY



(ROTOR ASSEMBLY)

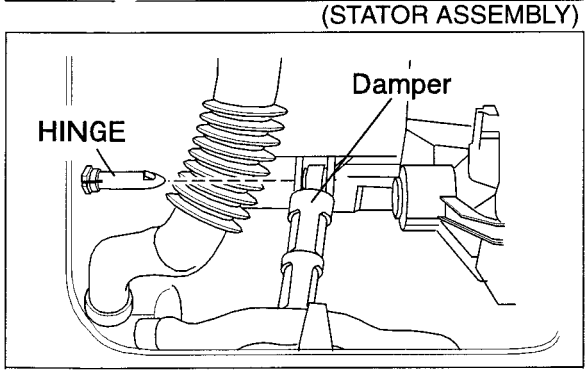
① Remove the BACK COVER.
② Unscrew the bolt to pull out the ROTOR ASSEMBLY.



(STATOR ASSEMBLY)

① Disconnect the wiring connector.
② Unscrew 6 bolts from the STATOR.
③ Remove the BODY FRAME.
(Only 1400 rpm models)

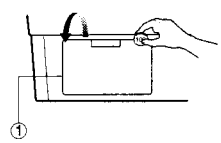
* Note : Hook of connector (1) is on the backside



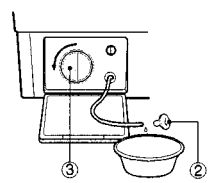
(FRICTION DAMPER ASSEMBLY)

① Pull out the HINGE, pressing its snap.
② Do not use the pulled out HINGE again
It may be taken off during operation.

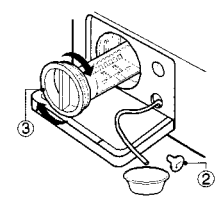
■ Clean the drain pump filter



Open the lower cover cap (①) by using coin.

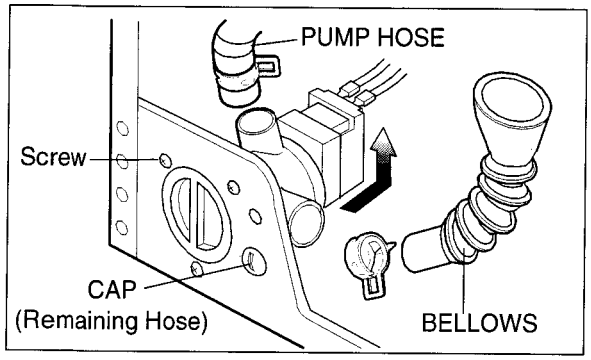


Unplug the drain plug (②), then the water flows out,
At this time use a vessel to prevent water flowing on the floor. If the water does not flow any more,turn the pump filter (③) open to the left.



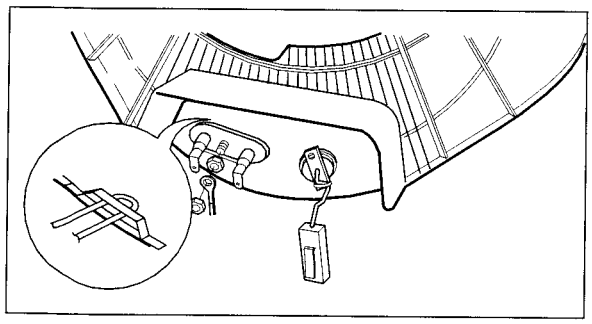
Take out any foreign material from the pump filter (③). After cleaning, turn the pump filter (③) clockwise and insert the drain plug (②) to the original place. close the lower cover cap.

DRAIN PUMP ASSEMBLY



① Remove PUMP HOSE.
② Remove BELLOWS..
③ Remove CAP (Remaining Hose.)
④ Disconnect the wiring.
⑤ Unscrew 3 screws
⑥ Remove the DRAIN PUMP ASSEMBLY.

HEATER ASSEMBLY

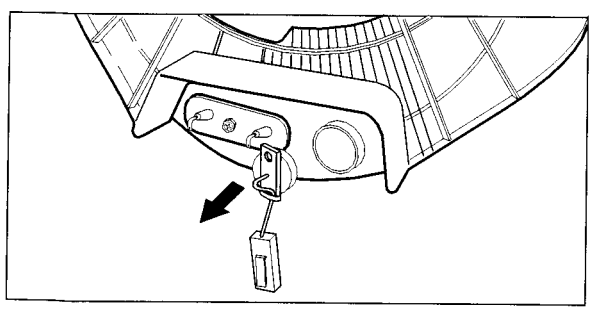


① Loosen the M6 heater nuts to pull out the HEATER ASSEMBLY.

CAUTION

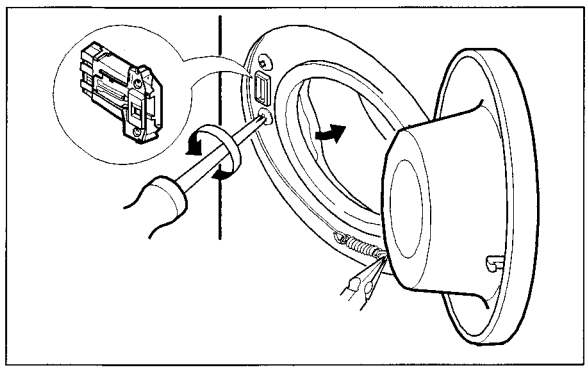
When mounting the HEATER ASSEMBLY be sure to insert the HEATER ASSEMBLY into the heater clip on the bottom of the tub.

THERMISTOR



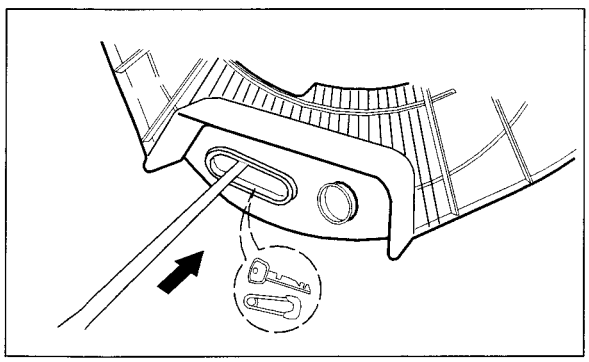
① Pull it out by holding the THERMISTOR bracket.
* If it is pulled by the wire, it may be broken.
② When mounting the THERMISTOR again, make sure that it is got back tight to the bushing.

SWITCH ASSEMBLY, DOOR LOCK



① Take apart the CLAMP ASSEMBLY (cabinet) and release the GASKET.
② Unscrew 2 screws holding the DOOR SWITCH ASSEMBLY.
③ Disconnect the door lock from the wiring connector.

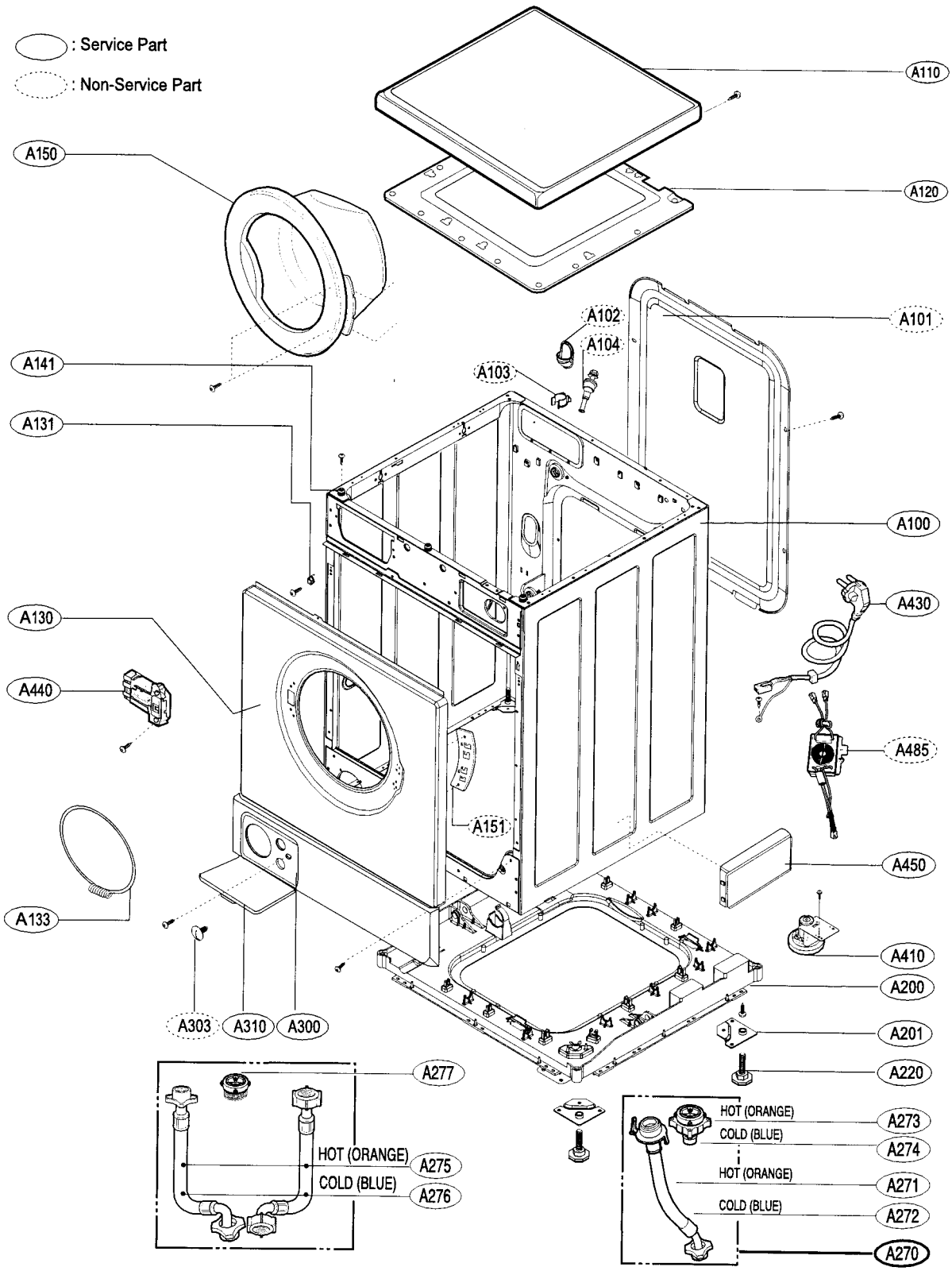
WHEN FOREIGN MATERIAL IS STUCK BETWEEN DRUM AND TUB



① Remove the HEATER ASSEMBLY.
② Remove the foreign material (wire, coin and others) by inserting a long bar through the hole.

10. EXPLODED VIEW AND PART LIST

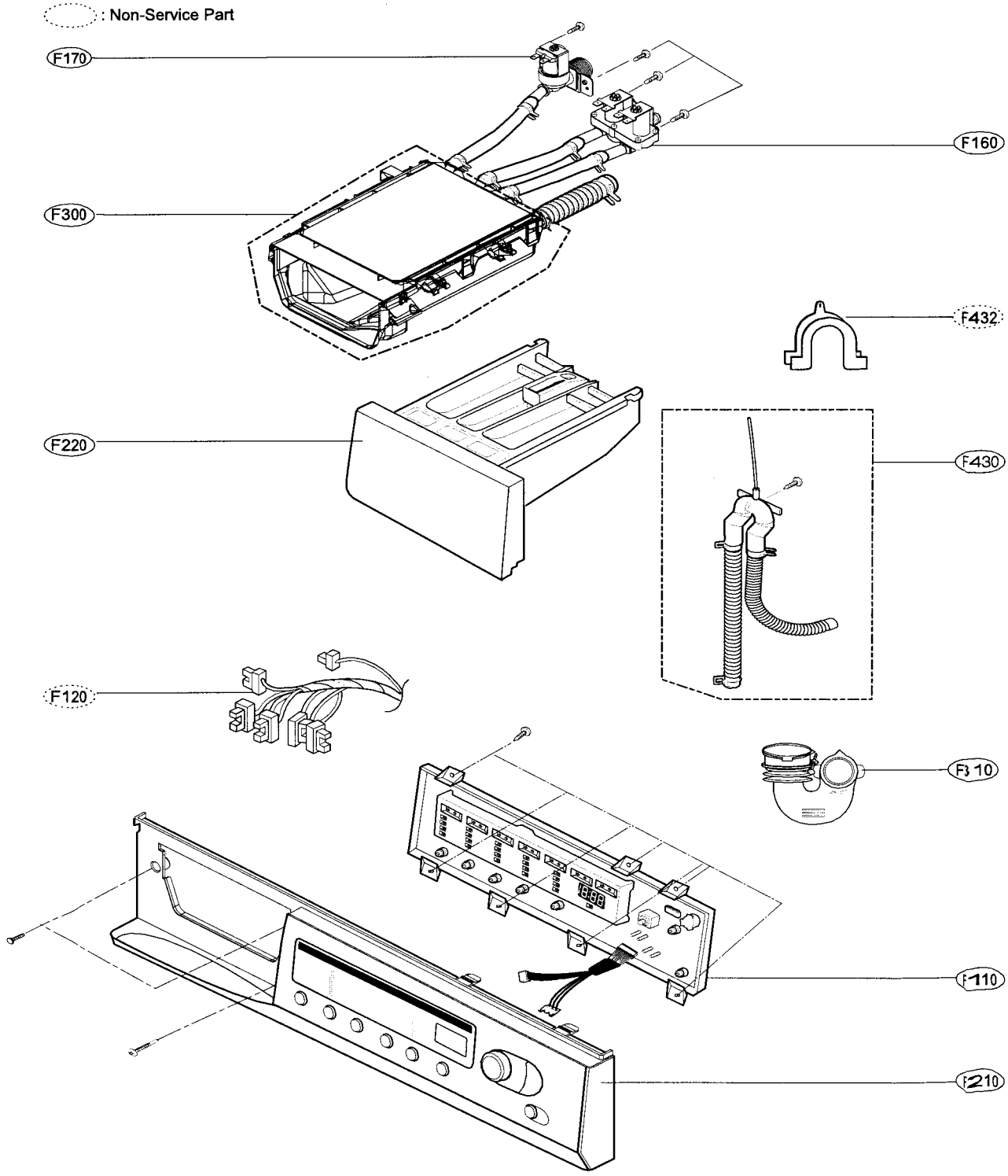
10-1.THE PART LIST OF CABINET ASSEMBLY



10-2 THE EXPLODED VIEW OF CONTROL PANEL & DISPENSER ASSEMBLY

: Service Part

: Non-Service Part



10-3 THE EXPLODED VIEW OF DRUM & TUB ASSEMBLY